



US-1520

SEQUENCE LISTING

<110> Ajinomoto Co., Inc.

<120> Method for Producing Target Substance by Fermentation

<130>

<150> JP 2002-203764

<151> 2002-07-12

<160> 32

<170> PatentIn Ver. 2.0

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<223> Description of Artificial Sequence: primer for
amplifying Escherichia coli arca gene

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for
amplifying Escherichia coli arca gene

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<210> 3

<211> 40

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for
sequencing of Escherichia coli arca gene

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<212> DNA

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<220>
 <223> Description of Artificial Sequence: primer for
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<400> 5
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 <223> Description of Artificial Sequence: primer for
 amplifying Escherichia coli dam gene

<400> 6
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<210> 7
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<220>
 <223> Description of Artificial Sequence: primer for
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<210> 8
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<210> 9
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<213> Artificial Sequence

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amplifying Escherichia coli fnr gene

<400> 9
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<210> 10
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<223> Description of Artificial Sequence: primer for
amplifying Escherichia coli fnr gene

<400> 11
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<211> 29
<212> DNA
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<223> Description of Artificial Sequence: primer for
sequencing of Escherichia coli fnr gene

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<210> 13
<211> 29
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<220>
 <223> Description of Artificial Sequence: primer for sequencing of Escherichia coli suCA gene

<400> 13
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<210> 14
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 <212> DNA
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<210> 15
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<210> 17
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<210> 18
<211> 29
<212> DNA
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<223> Description of Artificial Sequence: primer for
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<400> 18
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<210> 19
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<220>
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<222> (41) .. (757)

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Ile Leu Ile Val Glu Asp Glu Leu Val Thr Arg Asn Thr Leu Lys Ser																	
att ttt gag gcg gaa ggt tat gtc gtg tac gaa gcg acc gat ggt gca																	151
Ile Phe Glu Ala Glu Gly Tyr Val Val Tyr Glu Ala Thr Asp Gly Ala																	
gag atg cac cag gtg ttg acc gac aat gat gtc aat ctg gtt att atg																	199
Glu Met His Gln Val Leu Thr Asp Asn Asp Val Asn Leu Val Ile Met																	
gac atc aat ctg ccg ggt aaa aac ggc ctg tta ctg gca cgt gaa ctg																	247
Asp Ile Asn Leu Pro Gly Lys Asn Gly Leu Leu Leu Ala Arg Glu Leu																	
cgt gag caa gcc aat gtc gca ttg atg ttc ctg acc gga cgc gat aac																	295
Arg Glu Gln Ala Asn Val Ala Leu Met Phe Leu Thr Gly Arg Asp Asn																	
gaa gtc gat aaa att ctt ggg ctg gaa att ggt gca gac gac tac att																	343
Glu Val Asp Lys Ile Leu Gly Leu Glu Ile Gly Ala Asp Asp Tyr Ile																	
act aag ccg ttt aac cca cgc gaa tta act att cgt gca cgt aac ctg																	391
Thr Lys Pro Phe Asn Pro Arg Glu Leu Thr Ile Arg Ala Arg Asn Leu																	
ctg ttg cgc acc atg aat ttg cct tta ccc aat gaa gag cgt cgc cag																	439
Leu Leu Arg Thr Met Asn Leu Pro Leu Pro Asn Glu Glu Arg Arg Gln																	
gtt gaa agc tat aag ttc aac ggc tgg gag ctg gac atc aac agc cgc																	487
Val Glu Ser Tyr Lys Phe Asn Gly Trp Glu Leu Asp Ile Asn Ser Arg																	
tca ctc atc aat ccc aac ggt gag cag tac aaa ctg ccg cgc agt gag																	535
Ser Leu Ile Asn Pro Asn Gly Glu Gln Tyr Lys Leu Pro Arg Ser Glu																	

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Phe	Arg	Ala	Met	Leu	His	Phe	Cys	Glu	Asn	Pro	Gly	Lys	Ile	Gln	Thr	
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cgt	gct	gat	ttg	ctg	aag	aaa	atg	acc	gga	cgc	gat	ctc	aag	cca	cac	631
Arg	Ala	Asp	Leu	Leu	Lys	Lys	Met	Thr	Gly	Arg	Asp	Leu	Lys	Pro	His	
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gac	cgt	act	gtt	gac	gtg	aca	atc	cgt	cgt	atc	cgt	aaa	cat	ttt	gaa	679
Asp	Arg	Thr	Val	Asp	Val	Thr	Ile	Arg	Arg	Ile	Arg	Lys	His	Phe	Glu	
			200				205					210				
tcc	acg	cca	gat	acc	cct	gaa	atc	gcc	acc	att	cac	ggc	gaa	ggc	727	
Ser	Thr	Pro	Asp	Thr	Pro	Glu	Ile	Ile	Ala	Thr	Ile	His	Gly	Glu	Gly	
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<211> 238

<212> PRT

<213> Pantoea ananatis

<400> 20

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Asn	Leu	Val	Ile	Met	Asp	Ile	Asn	Leu	Pro	Gly	Lys	Asn	Gly	Leu	Leu	
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Thr	Gly	Arg	Asp	Asn	Glu	Val	Asp	Lys	Ile	Leu	Gly	Leu	Glu	Ile	Gly	
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Ala	Asp	Asp	Tyr	Ile	Thr	Lys	Pro	Phe	Asn	Pro	Arg	Glu	Leu	Thr	Ile	
			100					105					110			
Arg	Ala	Arg	Asn	Leu	Leu	Leu	Arg	Thr	Met	Asn	Leu	Pro	Leu	Pro	Asn	
			115				120					125				
Glu	Glu	Arg	Arg	Gln	Val	Glu	Ser	Tyr	Lys	Phe	Asn	Gly	Trp	Glu	Leu	
		130				135					140					
Asp	Ile	Asn	Ser	Arg	Ser	Leu	Ile	Asn	Pro	Asn	Gly	Glu	Gln	Tyr	Lys	
					150					155					160	
Leu	Pro	Arg	Ser	Glu	Phe	Arg	Ala	Met	Leu	His	Phe	Cys	Glu	Asn	Pro	
				165					170					175		
Gly	Lys	Ile	Gln	Thr	Arg	Ala	Asp	Leu	Leu	Lys	Lys	Met	Thr	Gly	Arg	
			180					185					190			
Asp	Leu	Lys	Pro	His	Asp	Arg	Thr	Val	Asp	Val	Thr	Ile	Arg	Arg	Ile	
		195					200					205				
Arg	Lys	His	Phe	Glu	Ser	Thr	Pro	Asp	Thr	Pro	Glu	Ile	Ile	Ala	Thr	
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<210> 21

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<212> DNA

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for amplifying ori6K and mobRP4 gene

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<210> 22

<211> 30

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: primer for amplifying ori6K and mobRP4 gene

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<210> 23

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for amplifying Chloramphenicol resistant gene

<400> 23

ataaagatct gtgtccctgt tgataccggg

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<210> 24

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for amplifying Chloramphenicol resistant gene

<400> 24

ggggagatct tgcaaggcga ttaagttggg

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<210> 25

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer for amplifying kanamycin resistant gene

<400> 25

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<210> 26		
<211> 29		
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<223> Description of Artificial Sequence: primer for amplifying Pantoea ananatis arCA gene		
<400> 27		
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<223> Description of Artificial Sequence: primer for amplifying Pantoea ananatis arCA gene		
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<220>

<223> Description of Artificial Sequence: primer for
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<400> 30

cccgcacatgca ccttcgccgt gaatggtgg

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<210> 31

<211> 927

<212> DNA

<213> Escherichia coli

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<222> (101)..(817)

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	Met Gln Thr Pro His
	1 5
att ctt atc gtt gaa gac gag ttg gta aca cgc aac acg ttg aaa agt	163
Ile Leu Ile Val Glu Asp Glu Leu Val Thr Arg Asn Thr Leu Lys Ser	
	10 15 20
att ttc gaa gcg gaa ggc tat gat gtt ttc gaa gcg aca gat ggc gcg	211
Ile Phe Glu Ala Glu Gly Tyr Asp Val Phe Glu Ala Thr Asp Gly Ala	
	25 30 35
gaa atg cat cag atc ctc tct gaa tat gac atc aac ctg gtg atc atg	259
Glu Met His Gln Ile Leu Ser Glu Tyr Asp Ile Asn Leu Val Ile Met	
	40 45 50
gat atc aat ctg ccg ggt aag aac ggt ctt ctg tta gcg cgt gaa ctg	307
Asp Ile Asn Leu Pro Gly Lys Asn Gly Leu Leu Leu Ala Arg Glu Leu	
	55 60 65
cgc gag cag gcg aat gtt gcg ttg atg ttc ctg act ggc cgt gac aac	355
Arg Glu Gln Ala Asn Val Ala Leu Met Phe Leu Thr Gly Arg Asp Asn	
	70 75 80 85
gaa gtc gat aaa att ctc ggc ctc gaa atc ggt gca gat gac tac atc	403
Glu Val Asp Lys Ile Leu Gly Leu Glu Ile Gly Ala Asp Asp Tyr Ile	
	90 95 100
acc aaa ccg ttc aac ccg cgt gaa ctg acg att cgt gca cgc aac cta	451
Thr Lys Pro Phe Asn Pro Arg Glu Leu Thr Ile Arg Ala Arg Asn Leu	
	105 110 115
ctg tcc cgt acc atg aat ctg ggt act gtc agc gaa gaa cgt cgt agc	499
Leu Ser Arg Thr Met Asn Leu Gly Thr Val Ser Glu Glu Arg Arg Ser	
	120 125 130
gtt gaa agc tac aag ttc aat ggt tgg gaa ctg gac atc aac agc cgt	547
Val Glu Ser Tyr Lys Phe Asn Gly Trp Glu Leu Asp Ile Asn Ser Arg	
	135 140 145
tcg ttg atc ggc cct gat ggc gag cag tac aag ctg ccg cgc agc gag	595
Ser Leu Ile Gly Pro Asp Gly Glu Gln Tyr Lys Leu Pro Arg Ser Glu	
	150 155 160 165
ttc cgc gcc atg ctt cac ttc tgt gaa aac cca ggc aaa att cag tcc	643
Phe Arg Ala Met Leu His Phe Cys Glu Asn Pro Gly Lys Ile Gln Ser	
	170 175 180
cgt gct gaa ctg ctg aag aaa atg acc ggc cgt gag ctg aaa ccg cac	691

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			185					190					195			
gac	cgt	act	gta	gac	gtg	acg	atc	cgc	cgt	att	cgt	aaa	cat	ttc	gaa	739
Asp	Arg	Thr	Val	Asp	Val	Thr	Ile	Arg	Arg	Ile	Arg	Lys	His	Phe	Glu	
		200					205					210				
tct	acg	ccg	gat	acg	ccg	gaa	atc	gcc	acc	att	cac	ggg	gaa	ggg		787
Ser	Thr	Pro	Asp	Thr	Pro	Glu	Ile	Ile	Ala	Thr	Ile	His	Gly	Glu	Gly	
	215					220					225					
tat	cgc	ttc	tgc	ggg	gat	ctg	gaa	gat	taa	tcggc	tttac	caccgt	caaaa			837
Tyr	Arg	Phe	Cys	Gly	Asp	Leu	Glu	Asp								
230					235											
aaaaacggcg	cttttttagcg	ccgttttttat	ttttcaacct	tattttccaga	tacgtaactc											897
atcgtccgtt	gtaacttctt	tactggcttt														927

<210> 32
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 <212> PRT
 <213> Escherichia coli

<400> 32

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Ala	Thr	Asp	Gly	Ala	Glu	Met	His	Gln	Ile	Leu	Ser	Glu	Tyr	Asp	Ile	
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Asn	Leu	Val	Ile	Met	Asp	Ile	Asn	Leu	Pro	Gly	Lys	Asn	Gly	Leu	Leu	
	50					55					60					
Leu	Ala	Arg	Glu	Leu	Arg	Glu	Gln	Ala	Asn	Val	Ala	Leu	Met	Phe	Leu	
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Thr	Gly	Arg	Asp	Asn	Glu	Val	Asp	Lys	Ile	Leu	Gly	Leu	Glu	Ile	Gly	
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Ala	Asp	Asp	Tyr	Ile	Thr	Lys	Pro	Phe	Asn	Pro	Arg	Glu	Leu	Thr	Ile	
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Arg	Ala	Arg	Asn	Leu	Leu	Ser	Arg	Thr	Met	Asn	Leu	Gly	Thr	Val	Ser	
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Glu	Glu	Arg	Arg	Ser	Val	Glu	Ser	Tyr	Lys	Phe	Asn	Gly	Trp	Glu	Leu	
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Asp	Ile	Asn	Ser	Arg	Ser	Leu	Ile	Gly	Pro	Asp	Gly	Glu	Gln	Tyr	Lys	
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Leu	Pro	Arg	Ser	Glu	Phe	Arg	Ala	Met	Leu	His	Phe	Cys	Glu	Asn	Pro	
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Gly	Lys	Ile	Gln	Ser	Arg	Ala	Glu	Leu	Leu	Lys	Lys	Met	Thr	Gly	Arg	
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Glu	Leu	Lys	Pro	His	Asp	Arg	Thr	Val	Asp	Val	Thr	Ile	Arg	Arg	Ile	
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Arg	Lys	His	Phe	Glu	Ser	Thr	Pro	Asp	Thr	Pro	Glu	Ile	Ile	Ala	Thr	
	210					215					220					
Ile	His	Gly	Glu	Gly	Tyr	Arg	Phe	Cys	Gly	Asp	Leu	Glu	Asp			
225					230					235						